

REMARKS

The Examiner has rejected all of the claims on the basis of prior art, with the exception of claims 71-79, which the Examiner apparently overlooked.

By the present Amendment, all of the previously pending claims in the application have been cancelled. Instead, new claims 114-182 have been presented that correspond generally to the claims that have just been cancelled, although no claims corresponding to cancelled claims 106 – 109 have been presented. In addition, new independent claims 183 and 184 have been presented that correspond to amended versions of cancelled claims 34 and 68, as will be described in more detail hereinafter.

In making the amendments, the applicant was mindful of the extended history of prosecution of this case and, in view of that, a fundamental review of the application and the prior art was made. Following the review, the claims were revised in a genuine effort to clarify and distinguish the present invention from the prior art references cited in the prosecution, and in particular Hillson (US 6,118,860) and Eaton (US 6,003,019).

Referring to independent method claim 114, the claim is directed to a method for controlling an ATM or kiosk, and it comprises the steps of providing an embedded software application, at least one device, and middleware software - all at the ATM or kiosk. Although the present invention has utility for providing easier ways for updating a network of ATM or kiosks that have different device capabilities, this is a use of the invention rather than a characteristic feature. The invention is itself embodied in a single ATM or kiosk (or individually in each single ATM or kiosk in a network of ATMs and/or kiosks).

ATMs and kiosks define a technical field which is very different from the field of general computing devices or personal computers. Firstly, the various devices provided in an ATM or

kiosk (such as cash dispensers, card readers, cash acceptors, printers etc) are complex devices requiring complex drivers which are not provided for as part of regular computer operating systems. In addition, the devices are subject to rigorous performance requirements in order to be used for financial services.

For example, consider a paper feed mechanism. Such a mechanism could be incorporated in a regular office printer. A paper jam can occur in any number of locations within the printer. To remedy a paper jam the user can simply open the machine and remove the relevant pages. A paper feed mechanism is also used in a cash dispenser. However, in this case it is crucial to know precisely how much cash has been dispensed so that the accounts of the bank and the user will tally. Accordingly, the paper feed mechanism for a cash dispenser is typically provided with a host of sensors which are not required or present in a paper feed mechanism for an office printer. This is just one illustration showing that the nature of the devices used in an ATM or kiosk is very different from the nature of devices used in a regular computing environment; and serving to illustrate that the field of ATMs and kiosks defines a unique technical field as compared with computers in general.

Further, claim 114 more clearly calls for each of the elements provided by the method of the claim, namely the application, the devices and the middleware software, all to be provided at the ATM or kiosk and are thus contained within the specific technical field of ATMs or kiosks.

According to the invention, middleware software is provided at the ATM or kiosk for interfacing the application (which is provided at the ATM or kiosk) with the devices (which are provided at the ATM or kiosk). This middleware software has various features set out in claim 114 which enable the application to operate independently of the particular devices which are provided at the ATM or kiosk.

For various device types, such as card readers, cash dispensers, cash acceptors, keyboards, printers and so on, there are many different variants. The particular hardware devices of any device type can for example vary according to manufacturer, model number and firmware upgrade versions, so for any given device type there are in fact many variations that exist between the particular hardware devices of that type.

It is a problem for a software application in an ATM or kiosk to take account of the wide variations in particular hardware devices within any given device type. The method according to claim 114 provides additional, middleware software which takes account of these variations and has the ability to interface the application with the devices.

The provision of this middleware software and the provision of this interfacing ability enables the application to be the same in different ATMs or kiosks even if the specific devices, such as hardware devices, are different. The technical features of the claim by which this isolation of functionality is achieved are the “software components” comprised within the middleware. Each software component supports a device type and is suitable for controlling the particular devices of the ATM or kiosk which belong to that device type. A software component can be thought of as embodying all knowledge of the behavior of all known variants of the particular devices of that type.

The middleware software therefore has the capability to control the particular devices and also translates the functioning into a form that the application can understand.

This amounts to a new method for controlling an ATM or kiosk where the dependence on particular devices is dealt with by the additional, middleware software, rather than having to be dealt with by the ATM/ kiosk software application.

More specifically, new independent apparatus claim 114 recites providing middleware software for interfacing the software application with the at least one device, wherein the middleware software comprises a software component for each device type, each software component embodying an ability to interpret specific capabilities of a plurality of devices belonging to that device type. In this regard, with respect to the software components, the specification recites on page 15, lines 16-24: "The primary subsystems of the middleware software comprise a series of wizards, device controls, selfservice controls, communications controls and status monitoring components. The top level components are the wizards, which are a series of transaction objects that implement common ATM/kiosk transactions such as dispensing cash, printing a statement etc." In addition, with respect to the ability to interpret capabilities of devices, the specification recites on page 16, lines 27-33: "An additional important feature of the wizards is that they are able to interpret the capabilities of the hardware on which they are run. For example, they may be able to establish whether a cash dispensing means is available. One application may then run on a plurality of different hardware implementations, adapting its functionality to the capabilities of that hardware."

Hillson has already been discussed during the prosecution and it is believed that it has already been clearly established that it does not disclose a middleware software in an ATM or kiosk comprising at least one software component; each software component supporting a device type and being suitable for controlling the devices of the ATM or kiosk belonging to that device type. Hillson discloses the use of a Java virtual machine and a method of transmitting HTML pages and applet programs to a kiosk apparatus, but this in no way relates to the problem of taking into account the differences between differing particular devices, such as hardware devices.

Likewise, Eaton has been discussed in the prosecution so far. To recap, the disclosure of Eaton relates to a system for the supply of multi-transaction services such as a financial services system, a retailer services system, or a communications system. The system of the disclosure is illustrated in figure 2, wherein a customer 80 can access an ATM 83 representing one of several customer service channels. An integrated channel manager (ICM) takes transactional data from various different customer service channels including the aforementioned ATM as well as telephone banking, interaction at a branch or various multi-media transactions, and transmits this transactional data to external sources. The integrated channel manager has various layers as illustrated in figure 3, including an outer layer having a number of service channel interfaces (one for each customer service channel), a second outer layer with a number of business operation interfaces and a third layer 140 which supports and executes a number of business application functions, such as a balance enquiry, an account credit, an account debit, cash deposit, cash withdrawal etc.

The integrated channel management system therefore serves to transmit a financial transaction request between the various service channels and the back-end systems of an organization, such as a bank, in a uniform manner independent of the specific channel where the request originated. Crucially however, Eaton teaches nothing about the internal workings of an ATM or a kiosk. These devices are merely represented as “black boxes” which provide an output. No modification is suggested to the application which runs in an ATM, and certainly no middleware software is anticipated within an ATM. The integrated channel manager acts as a further layer within the overall network architecture, but this in no way can be read on to the software layers as defined in the present independent claim 114.

Accordingly, it is disputed that the combination of Hillson with Eaton would even lead to

the present invention and there is certainly no motivation for the skilled person to refer to Eaton when reading Hillson, because Eaton teaches nothing about the internal workings of an ATM or kiosk.

Therefore, it can be seen that the present invention provides for a modification to existing ATMs or kiosks which is internal to a given ATM or kiosk and which provides a solution to a very real problem, namely the ability of the software to cope with variations in specific hardware configurations. This is achieved by defining a device control in a middleware software layer in an ATM or kiosk, the device control supporting a device type, so that knowledge of the various devices is contained within the middleware. Moving the capability to interact with different specific devices to a middleware layer provides an advantage because the ATM/kiosk software application is made independent of the particular devices which are provided at the ATM or kiosk. An ATM or kiosk having a software application which is independent of the various particular devices is simply unknown in the prior art. Typically, the software application is that used by a service provider to interact with the ATM or kiosk, and so a very technical problem is solved in removing the dependence of that application on the particular devices, such as hardware devices.

Features similar to those presented in independent method claim 114 are presented in new independent apparatus claim 147. Again, the ATM/kiosk software application, devices and middleware software are all comprised in the ATM or kiosk. Claim 147 is novel and unobvious with respect to the prior art for reasons similar to those recited above for claim 114.

The dependent claims are similar to those previously presented but have terminology corresponding to the terminology of new independent claims 114 and 147. In order to help the Examiner and direct her attention to certain key aspects, the following comments are made with

respect to selected claims. This should not be interpreted as saying that these claims are more important than the others, and no admission is made with respect to any claim not commented upon. However, in any future communication, the Examiner's opinion on each of these dependent claims would be appreciated in order to clarify for the applicant the reasoned position of the Examiner.

Claims 119 and 120 and corresponding claims 152 and 153 refer to a capabilities interface. This is an optional feature and represents one embodiment of how the middleware software can interface the application with the devices. The capabilities interface represents a communication of the specific capabilities of the specific devices, such as hardware devices, and this is not discussed anywhere in the prior art.

Claims 127 and 128 and corresponding claims 158 and 159 recite an optional web browser. This provides benefits for the easy creation of applications, for example, using readily available web tools which provide appropriate easy to use graphical interfaces to create event driven applications. It is to be remembered that the obviousness is to be judged as of the priority date of the application and, at this early stage in development of the internet technologies, it was not obvious to a person skilled in the art to use the internet within the ATM or kiosk environment in this way.

It is believed that the following discussion of the rejection of the previously pending claims, claims 34, 35, 37-69, 83-88, 91-105 and 110-113, under 35 USC 103 as being obvious over the Hillson reference in view of the Eaton reference might be helpful to understand the deficiencies of the prior art and the patentability of the present claims. The Examiner acknowledges in the Office Action that Hillson does not disclose either different transaction services being provided for different transaction device capabilities or capabilities of a

transaction device that are different from the capabilities of a transaction device of the same transaction device type in at least one other of the ATMs or kiosks. However, the Examiner contends that the Eaton reference teaches a method and corresponding system for transactions in an ATM or kiosk comprising different transaction services being provided for different transaction device capabilities and capabilities of a transaction device that are different from the capabilities of a transaction device of the same transaction device type in at least one other of the ATMs or kiosks. Then, the Examiner concludes that a combination of Eaton and Hillson would have been obvious. However, the Examiner does not provide any reasoning for her conclusion, such as identifying the elements of Hillson that should be modified and the way in which the disclosure of Eaton makes obvious their modification.

It is submitted that more than a conclusory statement, such as that provided by the Examiner, is needed to set forth a *prima facie* case of obviousness. Instead, some reasoning why the combination of references would have been obvious is required. In this regard, the court in *In re Kahn*, 78 USPQ2d 1329 (Fed. Cir. 2006) stated: “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” This recitation by the Federal Circuit was cited with approval by the US Supreme Court in the KSR decision (*KSR Int’l Co. v. Teleflex, Inc.*, 82 USPQ2d 1385 (2007)).

Furthermore, the Examiner does not explain how either of the references discloses the feature of claim 34 of “wherein the particular transaction services provided by the transaction objects depend on the capabilities of the transaction device type, with different transaction services being provided for different transaction device capabilities”. It is submitted that this feature is not disclosed in either of the references.

By the present Amendment, another new independent claim, claim 183, differs from cancelled claim 34 by the recitation: “wherein the transaction services provided by the transaction objects depend on the transaction device type, and the transaction objects have the ability to provide transaction services for said at least one transaction device of said transaction device type, as well as for a transaction device of said transaction device type that has capabilities different from the capabilities of said at least one transaction device, but the programming interface of the transaction objects is independent of the capabilities of the transaction device.” It is believed that, with the amended language, claim 183 even more clearly distinguishes the present invention from the prior art than claim 34 did. The comments above with respect to new independent method claim 34 also apply to new independent apparatus claim 184, which differs from cancelled claim 68 in a way analogous to the way that claim 183 differs from cancelled claim 34.

It is submitted that, if the Examiner believes that any of the claims of the present Amendment is obvious in view of the references, the law requires her to point out where Eaton discloses the features of claim that are missing from Hillson, why it would have been obvious to incorporate those features in the method of Hillson, and what modifications of Hillson would have been obvious to make.

The last section of each of independent claims 183 and 184 relates to the ability of the middleware software to work with various devices of a given device type, for example, card readers, having different characteristics from one another. The last section of each of independent claims 183 and 184 recites that the transaction services provided by the transaction objects of the middleware software of the present invention depend on the capabilities of the device, for example, a card reader, with different transaction services being

provided for different transaction device capabilities. This recitation of the last section is not disclosed by the Hillson reference.

Even when considered in combination, the Hillson and Eaton references do not place the public in possession of the invention recited in any of the claims in the present Amendment.

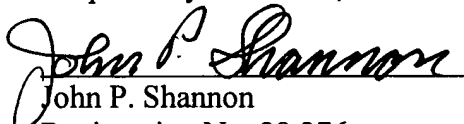
In view of the foregoing, it is submitted that all of the claims are allowable and that the application is in condition for allowance. An early notice to that effect is respectfully requested.

If the Examiner finds that any issues remain to be resolved that might be resolved by a phone call, she is invited to call the undersigned at the number given below.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0562.

Date: 8-21-08

Respectfully submitted,


John P. Shannon
Registration No. 29,276

Merek, Blackmon & Voorhees, LLC
673 South Washington Street
Alexandria, VA 22314
(703) 684-5633
Customer No. 48234

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John P. Shannon